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THE PHOTO-TELE-OBJECTIVE.

AMONG the great improvements in photographic optics which within the last year were brought to the notice of the scientific world, none has attracted more general attention than the announcement just made public, that two scientists, one in England, the other in Germany, who, presumably entirely unknown to each other, had solved the problem of telescopic photography, with an ordinary portable camera without the use of a telescope. The possibility of this new lens combination is so great that we must refrain from even discounting the important results which are in store for the scientific photographer of the present day.

From England we learn that Mr. T. R. Dallmeyer has constructed a photographic objective which in an ordinary camera, with an extension of two feet from the anterior level to the focusing screen, made it possible to secure an instantaneous photograph of a crow in mid-air about to settle on the top of a tree over one hundred yards distant; the image measuring three-quarters of an inch from tip to tip. A direct photograph of the sun was also secured by the same means; the disc measuring three-quarters of an inch in diameter.

Wonderful as this sounds it sinks almost into significance if we may trust the advices received from Germany regarding the results obtained by Dr. A. Miethe, the learned editor of the *Photographische Wochenblatt* with a lens of his own invention.

At the meeting of *Berlin's Practical Photographers*, November

4, 1891, it was stated that a picture of a monument on the Rhine had been obtained with the new objective from the opposite shore, two thousand meters distant; the image measuring 10 cm. [3.9 in.] the focus of the lens being about forty inches, whereas, with the objectives in general use, it would require a lens of about eight m. or twenty-six feet focus, to obtain equal results. Dr. Miethe, in describing his invention before the meeting, stated:

It is well known to every photographer that the size of the image upon the ground-glass depends upon one of three conditions, viz.:

1. The focal length of the objective.
2. Upon the distance of the same from the object to be photographed.
3. Upon the size of the original.

Two of these conditions, under certain circumstances, are subject to variation, viz: The distance from the object and the focus of the lens. If the object to be photographed can be approached, or lenses of different focal power are at our disposal, then we can obtain our image of any desired size.

Unfortunately, such favorable conditions do not always exist in everyday practice.

A nearer approach to the desired object is often impossible or impracticable, being unapproachable; for instance: Inscriptions or architectural details; game in its wild state; flying birds; ships at sea, and public ceremonies, are all subjects which fall outside the scope of photography, because the required distance is too great to afford recognizable detail in the resultant negative. In such cases the usual resort is the use of lenses of extreme long focus, which is very circumscribed.

Granted we had to photograph an inscription upon a rock formation 100 yards high, to obtain a fair view, without distortion, we would have to be at least 250 yards from the rock. This would bring the inscription at least 280 yards in a direct line from the lens. To insure distinctness the letters must appear at least 4 m.m. high upon the resulting picture. To attain this result a lense of 5.6 meters focus would be requisite, or, in other words, it would take a camera with an extension of about 18 feet.

To carry a camera of this kind on a photographic tour is not to be thought of.

Yet this is not a chimerical case, as similar ones crop out in actual practice almost daily with architectural photographers, explorers and travelling scientists.

Small images, with subsequent enlargement, as is universally known, suffer from the disadvantage that the grain of the plate even by a slight enlargement is apt to become so objectionably prominent as to destroy all detail.

To overcome the great difficulty in exposures, Dr. Miethe, the same as many photographers (professional and amateur) tried to surmount the difficulty by the use of a telescope; with a result more than questionable.

Independent of the circumstantiability of the contrivance, he could not obtain anything approximating to a serviceable negative. Then, again, a camera with a telescope in place of a regular photographic objective proved so awkward and unstable that success was not to be looked for, even with the firmest tripod, as the lightest breath of air or the least tremor spoiled the image.

Now, however, by the application of an entirely new principle in optics, Dr. Miethe has succeeded in overcoming the main difficulties, simply by the use of a combination of a convex lens of short focus with a concave lens of long focus; which are connected so as to allow an adjustment of the distance one from another.

This system, it is claimed, has the following advantages:

1. It produces an enlarged, reversed image of a distant object.
2. It can be used for any length of camera; therefore will give any size image.
3. By an adjustable combination it produces enlarged images in proportion to the focus of the combined lenses.

To illustrate the theory by an example: Granted we have a convex lens of 16 m. focus with concave lens of 1 m. focus combined in a reciprocal distance of 15 m. placed before our inscription, distant 280 m., this system with a camera extension of 13 inches will show an image as large as the ordinary lens with an 18-foot camera extension.

Naturally, by a slight variation of the lens-combination, we can obtain, at will, larger or smaller images, with any length camera.

This, in itself, is a great scientific advance. As a further illustration, Dr. Miethe produced two cameras, one with an Aplanat, the other with his new Objective. Both cameras extended the same length. By focusing sharp upon the same gas-flame, it was observed how gigantic the image of the new lens was in proportion to the old system.

Dr. Miethe then offered a number of prints made with the new Objective. They represented the towers of Potsdam, taken at a distance of 2480 meters, with a camera extension of 28 cm. (10.9 inches), in an ordinary portable camera. It was noticed that a great amount of detail shown in the picture was undistinguishable with the naked eye at that great distance.

Naturally the results here shown were more or less crude, and are not to be taken as perfect. The construction of the new objective was made upon very crude calculations, and even the technical part was not quite successful.

Dr. Miethe hopes to be able, during the present winter, to so far complete the necessary computations that he can submit objectives of far greater scope and power, and that all will agree that the invention is one of great technical importance to photography.

J. F. Sachse.

Illustrated Reporting.—In connection with the suicide of General Boulanger, a feat has been accomplished by the Paris weekly papers which shows to what perfection of dispatch illustrated reporting has now been brought. On Wednesday, on the reception of the news of the general's death, the *Illustration* sent to Brussels two members of its staff, one a draughtsman, the other a photographer. On Thursday morning these artists had photographed the general lying in state, as well as the hotel in the Rue Montover, and had even improvised a representation of the scene in the cemetery. They then took train and arrived in Paris on the same day with all that was needed for the illustration of that day's issue of the journal. An interesting detail is that the proofs of the photographs were taken and the artist's drawing executed during the railway journey back to Paris.—*London News.*

NEGATIVES FOR ENLARGING.

BY ELLERSLIE WALLACE.

HAS the prophecy ever been fulfilled that a time would come when it would be easy to make miniature negatives in pocket-cameras, and enlarge prints from them to any desired size?—the results, of course, to be first class in quality, and as good as, or better than if a large apparatus had been employed.

We think not. That excellent enlargements are made in great number, and much more readily too than in former times, must be admitted. But when the above question is asked, and inquiry made of those who have set out with high expectations in making negatives whether they have always been gratified with their prints when enlarged, have they not missed certain details in the enlarged print? Has there not been flatness and loss of brilliancy? Have not defects in the negative, so small as apparently to amount to nothing, come out in the print large in size and sadly prominent?

It will not do to press this rather searching photographic self-examination too far.

The modern processes by which enlarged positives either on glass or on paper are produced really leave nothing to desire *except good negatives.* This is the point. Good negatives. Good not merely as negatives, but moreover, good in possessing those particular features that render them capable of giving good enlarged prints. What are these features?

First, sharp optical definition. There can be no excuse nowadays for not securing this desirable quality with our excellent lenses. If a given stop on a given subject will not enable the lens to cut sharply to the edges of the field, a smaller one can be inserted without fear of making the exposure unduly long. But do photographers of the present day always understand just how to focus their lenses to the best advantage? If they are making portraits, for instance, where the head must be large, and consequently close to the lens, can they always be sure of choosing that point for

focusing upon which will distribute the definition evenly over the whole face and head when the stop is put in? Of course, it is impossible for any one to give a rule for matters like focusing a lens; but one may say that he has often obtained a good general focus on such difficult subjects by rapidly moving the ground-glass back and forth for an inch or two and observing at what particular point the image appeared fairly sharp all over. After selecting a proper stop, we would sharpen up the image with the fine screw, making up our minds at the same time what portions of it would have to be sacrificed as regarded extreme definition.

The focusing of landscape subjects is a very easy matter. If animals are being taken, however, sharp results can only be expected when a "finder" the duplicate of the lens used for making the picture is employed. If work of this kind is attempted, every care must be taken that the focusing screw moves with ease and evenness. Any jerking in the rack-and-pinion will render the operation of focusing difficult and uncertain.

Snap-shot exposures can undoubtedly be made to yield sharp negatives, but it will require more than ordinary care to keep the camera steady and free from movement at the moment of releasing the shutter. If the work be done with any idea of enlarging it afterwards, it would be advisable to have a fixed rest for the camera in default of the regular tripod. With the tripod there never need be any doubt of getting good, sharp negatives.

The next requisite for good negatives for enlargement is a proper tone-scale. By this we mean that flat, thin, solarized plates cannot be coaxed into fitness for enlargement; nor on the other hand can those which are crude and lacking in half-tone from undertiming or underdevelopment. Reducers and intensifiers are particularly useless here. The negative should be properly timed; and developed perhaps a trifle short of the density required for contact silver printing. Correct exposure of the plate is the *sine qua non.*

With the great rivalry now existing between different developers, it is a matter of some difficulty to give advice regarding the choice of a suitable one. There is no doubt that the standard pyro developers will now and then leave enough yellow stain on

certain kinds of plates to interfere greatly with enlarging. Ferrous oxalate is free from this objection, but is more troublesome to work; at least, it is generally so considered. The amateur should not let such a matter as this stop him however; the writer has recently seen a large number of negatives made with ferrous oxalate which exceeded in quality anything of like size which he could remember.

Lately it has become a well-established fact that a mixture of the two substances, hydroquinone and eikonogen, develops better than either of them used separately. These mixtures are sold in the stock trade under various names, and it will save trouble to procure a sample and work it according to the directions given. For those, however, who prefer to compound it for themselves, we suggest the formula of Mr. J. F. Sachse, as originally published in the AMERICAN JOURNAL OF PHOTOGRAPHY (VOL. XI., p. 265), viz.:

Sulphite of soda,	5 drachms
Eikonogen,	45 grains
Hydroquinone,	15 grains
Water, distilled,	8 oz.

Heat water to boiling point, and add the sulphite of soda; when dissolved add eikonogen, then the hydroquinone. Shake until thoroughly dissolved. After this solution has become cold add

Carbonate of potash, ... 1½ drachm

For use take equal parts of developer and distilled water.

The Floral Law of Color.—A florist who declares that a blue rose is among the possibilities has had called to his attention by a fellow-florist a very interesting law which appears to govern the coloring of all flowers. The law is simply this: "The three colors, red, blue, and yellow, never all appear in the same species of flowers; any two may exist, but never the third. Thus we have the red and yellow roses, but no blue; red and blue verbenas, but no yellow; yellow and blue in the various members of the viola family (as pansies, for instance), but no red; yellow and red gladioli, but no blue, and so on."—*Waterbury (Conn.) American.*

COPYING AS AN AMUSEMENT.

BY XANTHUS SMITH.

IN how many ways may the true lover of photography make the art agreeably entertaining and instructive. If his attention, and indeed one must also say her attention (for a large percentage of the best amateur photographers are ladies), be turned in a good direction, see the diversion that is given from the time that they begin to select their outfit, and gather together the necessary materials for the work, to the completion of the finished prints.

At this season, when the amateur is almost entirely debarred from outside work, a very interesting and instructive branch is opened by making copies of valuable works of art and objects of vertu.

To be convinced of the importance and value of copying by photography, one has only to think of the inestimable benefit which has been bestowed by it upon artists and connoisseurs in furnishing them with fac-similes of the drawings and sketches of the old masters. Thousands of copies have been made and distributed over the civilized world, from the folios locked up in museums and private safes in the capitals of Europe. The frail sketch, centuries old, through photography has become the property of any one; as much the resident of the wilds of a new country, be there cultivation, with even limited means, as of the wealthy collector of the metropolis. With the spread of art culture through literature, what a boon this is!

One reads of the wonderful works of Raphael, and Michael Angelo, and others, and if they have not traveled abroad are, at least, familiar with engravings from them, but to possess one or two of their off-hand sketches in fac-simile, is almost like being introduced to them in their studios; so completely does it let us into the inner working of the mind and hand of the man. In an artist's free sketch, wherein flow the off-hand workings of the imagination, one sees the character of the mind sometimes more clearly than in the highly wrought picture, which in its progress undergoes

a constantly refining and often toning-down influence; and in studying such sketches by different masters, it is remarkable to see what a wide diversity there is in the characters of different geniuses as given expression to in art. For instance, lay a sketch by Salvator Rosa alongside of one by Raphael, and compare the savage vigor of the former with the delicate, refined grace of the latter; or, put a Rubens and an Albert Durer together: how the full, rich, flowing grace of Rubens contrasts with the peculiar dry, methodical, and hard manner of Durer: and here let us deprecate all that criticism which in building up one hero tramples down another. How much of the writing upon art, in extolling one particular individual or school, finds nothing but glaring faults and imperfections in another, which, from a fair point of view, should be admitted to express as much talent in its way; it always being admitted that there is a conformity to some of the fundamental principles of art.

In art, as in many other matters, so little can be done towards giving a proper conception or appreciation by words alone, that those who are so fortunate as to have any interest in the work of the pencil and the brush are bound to hail with grateful delight the means which puts so much good and valuable art-work in our possession.

Now the writer would suggest as a pleasant winter occupation, for those who may not already have thought of it, the forming of collections of works of art, such as are out of the usual, and more rare, and yet may be got at by copying from works in libraries in the possession of friends of means, who would loan autotypes, etchings or engravings to be photographed by amateurs for their own gratification and that of a few friends.

What a choice lot and variety might be embodied in such an album! Then, again, the field could be greatly widened by adopting a system of interchange of such copies or albums.

The work is so simple that it may readily be accomplished by any one at all practiced in the art of photography; and as no additional apparatus beyond that used for good general work is needed, there is nothing to stand in the way of its being undertaken at once.

For those who wish to go thoroughly into the business of copying it is merely necessary to mention the following simple and necessary points to be attended to:

For copying generally any good, rapid rectilinear lens answers perfectly. The single lens, often used for landscape viewing, will not accomplish the work successfully, because it will distort or bow the marginal right lines of right-lined objects. In most cases, a long-focus lens is better than a wide-angle or short-focus one, because the latter will distort real objects more, and in copying flat objects, paintings, prints, etc., with glossy surfaces, will necessitate so close an approach to them, that the side next the light will be sure to glare. A lens of rather long focus will necessitate the use of a camera with a long draw, when the objects to be copied are small, or the addition of a cone to the front of an ordinary camera, which may easily be made with some thin wood, (parts of a cigar-box, for instance), and a little glue.

Care must be taken in copying prints to get them placed parallel with the face of the lens, so that the marginal lines will be square and the objects which they represent correctly portrayed.

The glare or reflection upon the face of oil paintings, photographs and the like, and especially such as have glass over them, which cannot always be removed, is a troublesome annoyance, and is but overcome in a good top or side light; the work being placed in such a manner as not to face the light too much nor to receive too skimming a light. The latter will show up the surface imperfections too much. Sometimes it is necessary to use a flaring box surrounding the object, painted dead black, or lined with black velvet on the inside. Care should also be taken that there are no bright objects about the camera or in any position from which they can cast a reflection on the surface of the work being copied.

As with most artist matters, some practice will soon beget skill, and as the work is proceeded with, and difficulties arise, a little ingenuity will readily overcome them.

Have you consulted our premium and clubbing list on the third page of the cover? If not, better do it at once; it may interest you.

RODINAL.

THIS new candidate for photographic favor is a clear, colorless liquid, which tastes slightly after sulphite of soda, and according to the printed directions is to be diluted with at least thirty times its bulk with water.

Exhaustive experiments have been made in Germany to test the properties and advantage of the new developer. Among others the following, which we find in the *Wochenblatt*, of Berlin, will prove of especial interest.

For this purpose two sensitometers were prepared from the same sheet of tracing paper, so as to be identically the same, and were arranged in twelve grades of density upon two thin glass discs. Under these sensitometers two plates were exposed simultaneously at a distance of about 10 feet (300 cm.) from a benzine light. Then both plates were developed, one with fresh rapid hydrochinone (Lainer formula), the other with Rodinal,—with the following results:

First trial.—Normal exposure 2 minutes 30 seconds. Rodinal 1:30. Both plates come up equally rapid. Development continued until the hydrochinone commenced to cause a slight fog. Both plates still show No. 11 after fixing. No. 1 is denser with Rodinal. It is surprising that with the new developer, Nos. 7, 8, 9, 10 come much denser than with hydrochinone.

Second trial.—Underexposure,—time, 1 minute. Developed as before. By continuing development until the hydrochinone showed a heavy fog No. 7 still discernible,—otherwise as above.

Third trial.—Conditions same as No. 1, except Rodinal reduced to 1:50. Result same as No. 2, except softer plates and finer graduations with Rodinal.

Fourth trial.—Four plates exposed 1 minute, and all developed successively with 50 c.cm. Rodinal 1:30. Time, 1 minute, 1 minute, 70 seconds and 80 seconds respectively, with equal results in all plates.

These experiments give following results, that Rodinal, even when diluted with water to fifty times its bulk, is still equal in reducing power to rapid hydrochinone. It however differs from the latter by its greater power and more intensive reduction in dimly lit places.

This peculiarity has without doubt been the cause that several experimenters attribute so much greater reducing properties to Rodinal than the older developers under similar conditions.

When no sensitometer is used, this impression becomes still greater, as the following trials show. For this purpose two plates were exposed, with a drop shutter in cloudy weather, aperture F 8, and F 16.

The two first were then tried with Rodinal and rapid hydrochinone respectively. They came up with about equal rapidity, and the development was continued until the hydrochinone showed a strong fog. After fixing it was found that the Rodinal plate resulted in a good negative, while the other was hard with glassy shadows, and showed a strong yellow discoloration.

In the two less lighted plates the difference was even still greater. The fog in the shadows of the hydrochinone plate was so dense that it was even denser than the half-tones, while the Rodinal plates showed no sign of fog.

In addition it was shown by the first series of experiments that a number of plates can be developed with a certain quantity of Rodinal, without perceptible difference in density and strength.

In regard to the keeping qualities of the new developer the following is to be mentioned, according to the published statement of the manufacturers. In original packages the fluid will keep without limit; after the packages are broken it will remain colorless for a long time.

In regard to the diluted developer the following trials have been made: When diluted with ordinary tap water, a light yellow fluid results, which in an uncovered graduate remained unchanged for about two days, after which it turned to a light orange, thence to a redish brown, after which small crystals and a yellow sediment formed. In a flat open dish the same changes took place, only more rapidly. The reducing power of the de-

veloper decreased with its discoloration, so that after a lapse of two days the solution gave only a hard negative, after long manipulation.

In all plates developed with Rodinal the great clearness and good color was noticeable. This first peculiarity, coming in all cases, is of great advantage, and must prove of great service in line work, as with the addition of bromide any degree of density can be attained.

In cases of overexposure, the developer may be tempered with more water, or the addition of bromide. The latter greatly retards development, but results in hard negatives. It has been found best to add some old developer in place of bromide.

When the requisite density fails, an addition of concentrated hydrochinone has been found to be of service, viz: About 5 c.cm. to 100 c.cm. of the Rodinal.

Hydrochinone	5 gr.
Water	100 c.cm.
Sulphite of Soda	10 gr.

Strong negatives of gray black tone and clear shadows have been gotten by these means, even after a strong overexposure.

On these grounds the writer assumes that the new agent Rodinal will prove a valuable developer for portraits as well as instantaneous exposures. For the former application the beautiful modulations shown in the sensitometer negatives give ample grounds.

Copying Music.—Sir George Grove, the director of the Royal College of Music, England, in a strong plea for the copying of the original autographs of classical music, in the London *Times*, says with reference to Beethoven's symphonies: "The published editions of such works, even the most careful, necessarily leave one but imperfectly informed of the real contents of the autographs. The very way in which the notes are put down in the bar in Beethoven's careful and shapely writing, the curious iteration of the marks of expression, and many similar things impress one, sentiment entirely apart, as nothing does in other musical autographs. Why should we not all have these manuscripts virtually in our own hands at our full disposal? Photography will give us the boon, and why should it not be employed? Photographic copies would be infallibly correct."

LITERARY LECTURES AND THE LANTERN.

PROF. W. HALL GRIFFIN, B. A.

THE lantern is now freely used for scientific lectures, and for those of a descriptive character. I am confident that it can be as usefully employed for literary purposes, and hope soon to see it abundantly so used.

My own ideas as to the employment of the lantern have simply grown out of my experience of the need of appeals to the eye to supplement those to the ear. I have found this as a public schoolmaster and as a lecturer. I have for years employed stenciled charts for history and literature, and have supplemented these by the use of photographs, portraits, etc., etc.

My slides for literary lectures I would class under three heads:

1. Those which illustrate the *lives* of writers. Such views are always of interest, and, although not *directly* helpful to the understanding of literary works, they serve to give reality to facts mentioned, and to bring home the surroundings of a writer in such way as to arouse interest in the works themselves.

Among such views I class portraits, so many of which Messrs. Mansell, of Oxford street, now supply in their "Literary Series"; views of the homes and haunts of our writers, autographs, etc. These awaken great interest when they serve as illustrations in our books (as they so freely do now), and I have found them as useful in lecturing.

My own idea of their use educationally is to bring out as fully as possible the circumstances under which works were produced; to deal with the home of the writer, we will say, and then take the works produced there. This is often most useful.

2. Views illustrating the *works* of writers. Any such views have a distinctly *educational* value, besides being of interest. Very often the views already spoken of are of this character; for the surroundings of a writer being known, one often sees the source of the illustrations he uses or the descriptions he gives. Scott and Wordsworth are instances of the possibilities in this direction.

But what is true of these two is true, in a degree, of all writers. No one who has not studied the question has any idea of the amount of useful, helpful illustration that may be given. Some wonder has been excited by my attempting to illustrate Browning. May I give an instance of the possibility? Take the well-known poem, "Andrea del Sarto."

(*a*) A picture hanging in the Pitti Palace, at Florence, shows the painter in conversation with his wife. The sadness of the expression on the painter's face, excited, it is said, Browning's interest, and suggested the monologue put into his mouth by the poet. I use a slide to show this picture.

(*b*) The famous portrait of Andrea in our own National Gallery is said to have influenced the treatment of the poem. This, therefore, is shown. It all serves to connect the unknown foreign picture with what should be known to all here.

(*c*) A view of Andrea's masterpiece in Florence, and of his Madonna in our own gallery, as well as a portrait of his wife (in Madrid), serve to bring out the fact (referred to in the poem) that the wife was his model for the Virgin, as well as to exhibit the work of the "Faultless Painter."

(*d*) A view of the house in which Andrea lived in Florence (the house Browning had in his mind in writing the poem, and where he imagines the conversation to take place) also serves to quicken interest, and to make the poem more real.

(*e*) A few views of the surroundings of that house, the church and its garden, nearly opposite, the view up the road to the hills of Fiesole (all of them in the poet's mind as he wrote, and all referred to), are other illustrations.

Now, I have chosen this, a somewhat favorable instance, because I have found that many students of the poem had *no idea whatever* that reference was so often made to real places, events, and people, and they have shown the greatest interest in the views. I use it to enforce the remark that only a close study of works can enable any one to realize how much aid the lantern can give in developing the depth of meaning or, in giving reality to such works.

Such views would illustrate passages which would be read while the views were on the screen.

3. Many works (let me keep to poems) are incapable of such illustration. As the *Daily Telegraph* remarked in its leader on the subject: "The ode 'To a Skylark' would not be rendered any more delicious than it is by a magic-lantern slide depicting the bird in the act of soaring heavenward." Quite true. But my third class of slides consists of passages from poems (printed passages) thrown on the screen, so that what is read or criticised may be before the eyes of all. The audience at once become audience and spectators, or, as Bunyan might say, "Eye-gate and ear-gate are attacked at once."

The use of such slides, accompanied by the other two kinds, is obviously advantageous. I also have charts of the lives of writers, and in some cases an analysis of a work, etc., as slides. By the use of those slides, passages can be *compared* far more efficiently than by mere appeals to the ear. It also allows of a passage (when needful) being kept before the eyes of all, so as to enable a more detailed criticism to be entered into; a criticism of any of those smaller points which are apt to be more wearisome when the passage is not before the eye.

Also, such slides enable poems to be dealt with (the "Skylark", for instance, which cannot be illustrated). The beauties or defects of a poem can be far more efficiently pointed out when the *reading* of passages and the comments are accompanied by the appeal to eye. It also serves the practical purpose of keeping up the continuity in the use of the screen, which seems to me needful in the lantern lecture—in most cases, at least.

The labor involved in arranging such a mass of illustration is, of course, very great; but I hope to see a great development in this direction, one of the best means, I am confident, of arousing interest in the study of the lives and works of our great writers, poets, and thinkers helps.

Glass for a Big Lens.—There is now being finished at Greenville, Pa., a disk of glass for a refracting telescope lens which is claimed as the largest that has ever been made in the United States. The disk is 30½ inches in diameter by 5⅛ inches in thickness, and weighs over 300 pounds.

PHOTO-ETCHING AND PRINTING.

CARL NEMETHY.

THE value of photo-mechanical reproduction for printing purposes is mentioned but little, although it is now known throughout the civilized world. We can positively say that the methods of reproducing fine art subjects are invaluable to the printing trade, and this alone may serve as the best proof of the great value of the photo-mechanical reproduction. In mentioning the printing trade I do not desire to mean simply type printers, who, no doubt, do partake the greatest benefit of all, but also the stone, copper and gelatine printers, who now cannot get along without the photographer's help.

Let us look backwards about ten years. What wonderful changes and developments can be shown in the printing trades since the photo-process of engraving was first introduced. Then the idea of almost everybody was to find a substitute for the wood-cut. If a photo-reproduction did not look like a wood-cut it found no admiration: it was simply no good; the original design of the artist was not admired, though it was given as true and perfect as the drawing itself.

At first, we began by reproducing wood-cuts and autographs, and later, by improved methods of etching, we reached the point where we could produce a plate with the finest lines and dots, showing a perfect, clear picture, and etched as deeply as, or more so than, the finest wood-cut ever made. The great benefit of this new etching method is the durability of the plates, the assurance that the reproduction is as perfect as the original, and then the large saving of time and money in execution, and the fact that the original cut can be used, by proper overlay, for an edition of 50,000 to 100,000 copies without fear.

A good plate cannot be produced by accident, nor is it a simple mechanical result. There is as much skill, taste, knowledge and talent required to make a good negative as there is to any other

kind of artistic work; and a good etcher is fully entitled to be called an artist.

The fear of some printers to adopt plates made by this method of illustrating is a natural one, as most of the exhibited sample proofs are presented to them on the finest coated and most expensive enameled papers, pulled off with the greatest of care, with the assurance that the cut does not need to be prepared with overlays! When the printer took hold of one of these cuts and acted on this statement, he could not get a good result, as he put the cut in a big steam press, and printed type and cut at the same time, without overlaying it, to his own and the public's disgust. He then, naturally, claimed that the etching was not deep; it filled up; was gray; flat; spotty, and blurred. Indeed, it is hard to induce a printer who has handled one of these cuts in the way stated, to take another executed by some one who is an expert in this line, and would give him the instructions how to print it.

I admit that printers have just cause to complain about some of the photo-made plates sent to them. Why not? when it is known that there are people who buy instruction books for twenty-five cents which assume to teach the whole photo-etching process in from two to three weeks' time, and then start into business and announce to the public to be able to produce first-class work! when it really requires years of study, practice, skill, talent and taste. There is just as much difference between etchers as there is between a first-class star of the stage and an amateur actor; the latter may be admired by his friends and family, but not so the amateur etcher or reproducer who claims to be an expert and claims to know (per his twenty-five cent. book) as much as an experienced and skilled reproducer who has worked for years at that art.

The development of our etching process has kept step with the improvement of the age since 1884, and we are now able to produce a cut as nearly perfect as a photograph. Previous to this time the original had to be redrawn by pen or crayon, to form lines or dots, which were reproduced by photo-process and etched.

The origin of the experiments of reproducing a picture more perfect than a lithograph or wood-cut, and direct from the photo

or object, was conceived about ten years prior to the date mentioned by Petit, Goupil, Monsot, Ives, Jaffe, and Angerer; and in 1879 we had several proofs of half tone reproductions from Vienna, though not perfect enough to be published.

Meissenbach, of Munich, was the first to produce good results in half-tone etching; but to-day new methods and new ideas are so far developed in many others that no one works by his process. We can now reproduce an oil or water-color painting, India ink or crayon, pencil or charcoal drawing, a steel or copper engraving, a lithograph, in colors or black, as perfect as the original, and in a surprisingly short time, combining all the character and genius of the artist in the reproduction, thereby illustrating the value of this method.

Thus have we been enabled to see some of the old masters and treasures of many hundreds and thousands of years ago by means of the new photo-etching methods, which have furnished an illustrating medium to bring before us, over and over again, those invaluable collections of ideas of our forefathers. The wood, steel or copper engravings, and other expensive methods, never could have brought these treasures before the public. Indeed, the increase of illustrated dailies and weeklies during the last ten years attests the value of the photo-process.

With the improvements acquired by this great illustrating medium industry, science and education grow day by day, by its examples of skill; and the reproduction of a piece of art does not now belong exclusively to the photo-gravure printer or copper or steel engraver; it is now the letterpress printer who handles the common type press, and its rapid means of production benefits all. Still, it is plain and clear that the works of the former are much admired, and they will keep their place as artists no doubt for ages in a certain line. But for cheap yet artistic means of illustrating, the most perfect and only way that I can see is that of the type method of printing from photo-etchings.

The result of a fine etching is as much a work of art as that of any other reproduction method, for the etcher has to use his brain and skill to etch the fine and delicate lines of the design,—equally as much so as the engraver has to do it with his tools or the painter

his brush. The sun or electric light and the chemicals do not do all the work: the skill of the etcher is what is needed to bring life into the etching.

Why do we not get good results from the products of all the engraving or etching concerns? Because the machines do not work alone, and the fine outfits and choice chemicals do not turn out perfect plates. Still, practice and a thorough knowledge is required to have a first-class result: without these all else is useless.

The printing trade has also gained another invaluable field through the photo-mechanical process for printing in colors. Pictures which by lithography often required as many as twenty plates, can be beautifully executed with eight or ten colors, by the modern photo-etching method. With four plates we can produce a picture that is more beautiul than a lithograph can be with the same number of colors.

The photo-etching is the great medium of the future for black as well as color printing, especially where one hundred thousand and more impressions are necessary. Certainly the simple first-class photo-etched plate of itself is by no means sufficient to produce an artistically perfect picture. The printer's part of the work must be done in the same earnest manner as the etcher's. He has to use his skill, taste and knowledge, and he can thereby produce a piece of art in his line.

The most artistic yet the most difficult of all methods of reproduction by photo-mechanical processes, is the "Cromotypogravure." This is still in its infancy; and it is really impossible to state what growth and importance it will reach in the near future. It is the perfection of photo-mechanical processes, combined with the skill of an artist who can perfectly produce relief etched metal plates that can be used in an ordinary type-printing press for colored pictures. The reputation of type-press printing in colors has already reached an eminent place amongst high art, and this is now largely due to the aid of the photo-mechanical processes which are about the only medium for reproducing art pieces, provided the execution is placed in the hands of masters of this new and advancing art.

Some years ago the idea of making color plates by this process was laughed at, especially in competition with the well developed art of lithography. With little encouragement and no assistance I made plate after plate, until I reached the point where I can say that an etching can be produced which can stand the scrutiny of any critic, and which is more adaptable for artistic commercial work than is lithography. It is not because the letter-press can be run with higher speed than can the litho-press (although this is the point where the saving comes in), but it is because of the fact that a picture produced by letter-press printing is more effective and brilliant when five colors are used than is a litho-print in seven or eight colors; and if eight plates are used by typographical printing, the brilliancy of a litho-print produced by twelve is obtained. Those who can handle color plates easily can appreciate the importance of a reduction of three or four plates on a job.

Printing several colors on top of each other must be done very carefully, and the print must be perfectly dry before the next color can be printed, and with each additional color the difficulty grows: because if sufficient time is not given for one or the other of the colors to dry the whole work may be spoiled, as the colors will mix and produce a spotty and dirty picture. The printer who handles this class of work, being mostly an artist, cannot afford to spoil both his reputation and a large edition of such work. A good result can easily be obtained with plates produced by great care, artistic taste and ability.

The process and art of producing such color plates is kept secret by most of the establishments, and nearly every one has its different method. The Orthochromatic process is the one commonly used, and only very few artists can handle the different negatives for preparing (retouching) them for this work, which is far more difficult than the drawing on stone for lithographing. Perfect knowledge of colors and color-combination effects, long practice, and a natural taste and talent, is required to give the reproduction the trueness and effect of the original, yet this is the only way the artist's work can be produced without any change of its character, and the peculiarity of his handling the brush.

The artist printer has not the easiest part of the work, even after the most accurate and perfect plates are put into his hands, and we often ask more from him than from any other person connected with the production of colored work. He must have the thorough knowledge, skill and practice of handling the finest illustration cut. Science, taste and ability in selecting, and mixing, and applying the colors are of the greatest importance; and the cleanness and care in handling this work tends to the great secret of a successful result.

Each plate must be properly handled, and a most perfect overlay (even more so than for black printing) is required, and the proving and make-ready of each plate should be done in the proper color necessary to produce the required effect; otherwise a good result cannot be obtained. It is best to mix sufficient color for the whole work, as the same exact shade or tint can hardly be mixed again, and sometimes the slightest difference in tone will change the effect of the whole.

The paper should be rather soft and medium sized (or glued), not too hard and not too heavily coated, as the ink cannot soak in sufficiently and may pull off; nor is a too soft or unglued porous paper good, as it soaks in the ink too much, and gives a dull and dead look to the picture. The ink should be pure, finely ground, and very smooth, with but little artificial dryers, as the clearness and the softness of the ink is spoiled. The pure body color will dry the quickest, and will not change after it is dry.

During the last ten or fifteen years the number of the reading public has reached such an enormous height that not only the larger cities but every city is supplied with means to produce illustrated reading matter in great quantity, thereby stimulating the education and taste for art. This alludes mainly to works in black or one color, and since the photo-mechanical processes were adopted generally. Still, I must add that I believe that the color picture will be the illustration of the future, and this by the letter-press methods of printing from photo-mechanical plates. —*American Art Printer.*

ADAPTATION OF PHOTOGRAPHY TO PRINTING IN COLORS.

THE *Petit Journal*, of Paris, has just put out a new weekly publication with colored illustrations. It may be of interest to show how photography has been used in obtaining the typographic printing blocks. The attention of the great printing establishments of the whole world has been directed to the appearance of a rotary printing machine, which, receiving the white paper in rolls, converts it into a journal printed in four colors, and this at a rate of 12,000 copies in an hour. This result is due to the ingenuity of the celebrated engineer Marinoni, who, for the adjustment of the different monochromes has had recourse to photography. The colored picture of the artist is photographed by Messrs. Vallot Bros., who use for this work isochromatic preparations and colored screens, in order to obtain the relative values of the different tones of the original. From this negative, skillful workmen print four positive prints, which are transferred to wood; the work then passes into the hands of the art engraver, Mr. Meaule, who engraves on each of the blocks the cuts necessary to obtain in the printing all the lines which will deposit on the paper the same color. The blocks are then confided to a worker in galvanoplasty, who moulds and deposits the copper in sufficient quanity to take the place of the wood, and form the metallic block to be used in the printing. The metallic block is strengthened by running lead on the back, then bent according to the diameter of the cylinder of the machine upon which it is fixed.

By the aid of an ingenious contrivance of M. Marinoni's invention the sheet of paper is printed in one color by passing under a first block; immediately it presents itself under a second block, which prints the second color, in the same manner under the third, and finally under the fourth block, which limits and forms the connection by printing the text. With these superposed colors, and by the intervals showing the white of the paper,

it is possible to obtain the delicate tones of the aquarelle. This rotary machine, by using colored printing inks, has overcome a difficulty existing when chromo prints are made requiring four impressions. M. Marinoni is now preparing a machine for printing in six colors.—*Progress Photographique.*

MAXIMS FOR THE PROFESSIONAL PHOTOGRAPHER.

BY J. FOCUS SNAPPSCHOTTE.

AS a remedy for the prevailing cry of dull trade among a certain class of professional photographers, the following maxims are submitted for their consideration. It is not claimed by any means that they are all new or original, in fact some are patterned after "Poor Richard" of old,—perhaps a long way after,—others again are the result of the writer's own experience and observation in his rambles around among the craft.

A careful perusal of the list however will be found of far greater service to the professional photographer whose business is lagging, than volumes of essays by platitudian space writers, upon such subjects as, "Will glass floors in our studios overcome the heavy shadows under the eyes," or chapters of matter upon the peculiar chemical charges of the haloid salts during exposure, whether the Ag. Br. becomes Ag. 2½xBr. 3 3-16 or Ag. 2⅝xBr. 3 5-32.

Read the list carefully, and make a note of the special maxim applicable to your case, and then act upon the advice, and the writer's word for it, if your work is good and the prices right, you will soon have no time to growl and complain about the ruination of photographic portraiture by the advent of the five-dollar hand camera.

1. We can make the times better if we better ourselves.
2. Subscribe to and read at least two photographic periodicals.
3. Keep your studio, and your studio will keep you.
4. Watch the advertisements in the AMERICAN JOURNAL OF PHOTOGRAPHY.

5. Remember that attention to business and industry pay your stockhouse bills.

6. Allow no lounging in your reception room.

7. Promptness is your most successful advertisement.

8. Do not encourage social callers during business hours.

9. To-day is worth a week of to-morrows.

10. Be careful of your wastes,—they count up in a year.

11. Lost time is never found again.

12. Have Volume XII, of the AMERICAN JOURNAL OF PHOTOGRAPHY bound, and keep handy for reference.

13. Drive your business; do not let it drive you.

14. Pay your bills promptly; you buy cheaper and earn the discount.

15. Time enough, always proves little enough.

16. Keep abreast with the times.

17. There are no gains without pains.

18. Politeness and civility cost nothing, and often bring large returns.

19. Sloth, like rust, consumes more than labor wears.

20. Cater to the refined tastes of your customers only.

21. Diligence is the mother of good luck.

22. Be courteous to ladies and children under all circumstances.

23. Never leave that until to-morrow which you can do to-day.

24. Always offer your suggestions to a sitter with deference to his wishes.

25. Remember the eye of the master will do more work than both his hands.

26. Do not relegate the care of your show-case to your errand boy.

27. A small leak will sink a great ship.

28. Keep a constant watch upon the lesser details of your business.

29. Do not spare the broom, scrubbing brush and duster—they cost but little and soon pay for themselves.

30. He that lives upon hope will die fasting.

31. Try to please your customer, even if his desire be contrary to your ideas.

32. Cheap help is usually dearest in the end.

33. Insist upon neatness and cleanliness in all your employees.

34. Always taking out of the meal tub, and never putting in, soon comes to the bottom.

35. Permit no use of tobacco in any part of your gallery.

36. Be gentlemanly to the lowly,—their money is as good as that of the rich.

37. Remember gain is always uncertain, often but temporary: your expenses, constant and certain.

38. Want of care in your establishment does far more damage than lack of knowledge.

39. Not to oversee your assistants in studio and laboratory is to leave them your purse open.

40. Keep the entrance to your gallery clean, and make it inviting to the passer-by.

41. Never size up a customer by his clothing.

42. Truth and honesty always pay in the end.

43. Calculate well the probabilities of the future, and make your arrangements accordingly.

44. Cleanliness is more important than gaudy accessories.

45. Seek to impress your visitors by the appearance of your establishment.

46. Never stoop to deliberate falsehood to effect a sale.

47. To compete successfully with a neighbor, participate in the facilities offered to go ahead.

48. Seek to establish yourself on the broad and sound basis of *integrity*.

49. Bear in mind we can give you advice, but cannot furnish common sense.

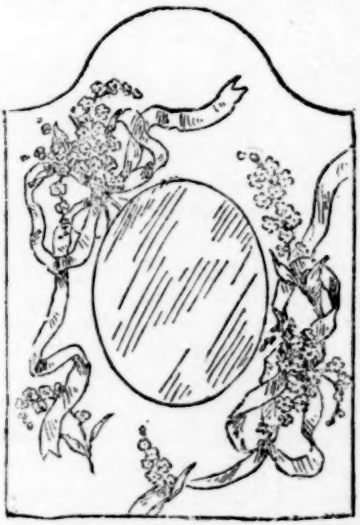
50. Last but not least, if you have not already done so, renew your subscription to the AMERICAN JOURNAL OF PHOTOGRAPHY, without delay.

How good-looking some of us would be could we only live up to the photograph which we regard as a perfect likeness.—*Boston Transcript.*

A TALK ON NEAT FRAMES FOR PHOTOGRAPHS.

EVERY housewife has a loving eye for dainty photograph frames, because they are so linked with loving associations of the friends whose faces they frame. And especially in the present season talks about these things seem interesting almost to enchantment.

If you can afford it, the better plan it to begin your work by ordering of a stationer some heavy foundation cards cut from heavy cardboard, in the shape you may desire, two cards being required for each frame; but if economy is a consideration, and you make your measurements very carefully and cut them very exactly, you can save the ten cents a pair which is the usual cost of the cut cards. Next, provide yourself with a pot of strong, well-strained flour paste, in which some gum arabic and a bit of alum have been added before boiling. Any material almost may be chosen for the covering,—handsomely figured English cretonne, gold-stamped Japanese cotton crepe, printed India silk, or the beautiful brocades of French looms,—these, if you do not wish to do the decorating yourself.



If you are skillful with your needle or brush, most beautiful results can be obtained either by painting or by embroidering with fine flosses and occasional gold or silver threads upon pongee, ooze leather, chamois skin, kid, heavy silk, or one of the endless weaves of linen which lend themselves so kindly to the decorator's needs. The embroidery should, of course, be finished, and carefully pressed before pasting the fabric to the frame, but painting is much better done after the frame is made. Having selected your covering, lay it right side down upon a table, placing the foundation card also right side down upon it, and cut the cover, leaving plenty of margin. Paste back this margin very carefully, giving especial attention to the fitting of the corners, and the perfect preservation of the curves of the

opening, which may be secured by snipping the material close to the card and pressing the little slits thus made firmly into place. Place the gummed cards between foils of soft old muslin, and lay these between many layers of newspapers under a heavy weight. Before they are perfectly dry take them out and iron them slowly until they are stiff. Now gum the pairs together on the top and sides, leaving the bottom open for the insertion of the photograph, and dry again in the same way. If you want to make a three- or four-fold frame, gum tiny ribbon hinges between the pairs of faces before the second pasting, and if you wish a single frame, make a standard of pasteboard, covering it with the same material you have used for the frame, and gum it strongly to the back by means of a bit of the stuff, which you have made longer than the standard.

A very pretty frame may be made in much the same general way, although fine very overhand sewing gives a better result. No opening is cut in the two cards, both sides of each being smoothly and evenly covered with the material. Across the top and bottom of one card folds of the material, enriched with embroidery and lined with plain linen, are carefully sewed, and between these folds the photograph is slipped, the dotted line in the design showing its position. The tops of the two cards are over-handed together, and the one side is made to do duty as prop for the other when open, or as cover when closed.

In much the same fashion is made the heart-shaped frame. Gum a thin layer of cotton wadding over the face of the heart, and over this a piece of yellow India silk. On this paste a cover of bolting cloth on which buttercups, natural foliage, have been embroidered. After the standard has been fitted, sew a fine gold cord all around the heart.

Finally, very charming little frames for the tiny portraits now so popular are cut from heavy whatman paper in the form of some favorite flower,—a pansy, a daisy, or a four-leaved clover, with an opening in the centre large enough for the pictured face. Paint these forms with broad washes of color, sharply defined lights and shadows, and outline each petal with a tiny line of gold or silver paint. Paste on a back and standard of heavy white bristol board, and you have with very little trouble or expense a very pretty trifle for your own boudoir, for you friend, or for the fancy fair in which you are so much interested and for which you have been wishing for "something new."—"*Delaware*," *in Philadelphia Inquirer.*

Dust is one of the greatest enemies a photographer has to contend with.

THE PHOTOGRAPHIC CONTEST OF THE BUFFALO "EXPRESS."

AMATEUR photographers contributed very materially to the make-up of the *Buffalo Illustrated Express.* If any one fancies that the word "amateur" implies inferior work, let him study the beautiful specimens of photography that adorn these pages, and revise his judgment. The following extract is from the issue of December 20th, 1891, and will be read with interest by the many friends of the successful competitors, viz:

The *Express* amateur photographers' contest began September 27st and closed December 14th. Within those dates nearly 3,700 photographs were received from all parts of the country. The success of the enterprise was far greater than we had dreamed of. Within a week from the time the first announcement was made we knew it was "a go." Before the month was up we began to wonder whether everybody was an amateur photographer. At the end of the second month we knew that practically everybody was either an amateur photographer or took a lively interest in the work. We have received not merely photographs by the thousand, but scores and hundreds of letters from all parts of the country in regard to it.

Two great classes of work were made, the "general camera" and the "Kodak" class, with two prizes of $25 and $15 in each. On this page we give three prize-winners in the "general" class, an extra $20 prize having been created in order that we may more satisfactorily recognize as much of the superior work as possible. The pictures which receive the prizes have been selected only after the most painstaking examination and comparison. The merit of every picture received has been considered under the following heads and on the following scale:

	Per cent.
Artistic value of the composition, whether figures, landscapes, or other subject,	.25
Originality of conception,	.25
Illustrative value,	.25
Technical excellence (either in the negative or in finishing the print),	.25

It will suffice to say that in the committee on award the judge on this point of technical excellence was Mr. H. McMichael, ex-president

of the American Photographers' Association and a professional photographer of the highest reputation, who has often served as expert judge and referee among his professional brethren. It will be noted that the pictures which receive the first and second prizes have the same total of credit—85. This was the result of the marking by four judges without consultation,—*i. e.*, each valued the picture in his own department regardless of what value the others had put on it. There being a tie, manifestly the just thing to do by the competitors was to consider their other work. The merits of this, as shown in the table, clearly entitled Mr. Clarence B. Moore, No. 1321 Locust Street, Philadelphia, Pa., to the first prize, though we assure that gentleman that if the phrase "First among equals" were ever true, it is so in his case.—*Buffalo Express*, Dec. 20th, 1891.

Historical America.—A meeting to further local representation at the Historical American Exhibition that will be held in Madrid, Spain, from September 12th to December 31st, 1892, was lately held at the Franklin Institute, Dr. Jose Congosto, the Spanish consul in this city, presiding. Among those present were A. G. del Campillo, delegate-general of the exhibition to this country; Dr. Persifor Frazer, Dr. Daniel G. Brinton, Dr. Juan Guiteras, Professor E. D. Cope, Charlemagne Tower, and Dr. Charles C. Abbott. It was decided to issue a general circular to enlist popular support from this locality.

The University of Pennsylvania, Academy of Natural Sciences, and a number of private individuals have signified their intention of contributing American historical articles to the exhibition. The exhibition will be purely a historical one to commemorate the fourth centennial of the discovery of America under Spanish auspices, and will embrace a complete collection of documents relating to the discovery and conquest of the New World, together with all objects that will give an idea of American history anterior and coëvual with that epoch. In addition, native industrial arts and American fine arts up to the middle of the eighteenth century will be displayed, to secure which much depends upon the assistance rendered by the citizens of this country.

The Madrid exhibition will in no way conflict with the Chicago World's Exposition. On the contrary, many articles of important historical interest will be sent from there to Chicago. The articles to be exhibited will be forwarded to Madrid and returned at the conclusion of the exhibition at the expense of the managing committee, which also guarantees the safe return of the exhibits.

ARTIFICIAL HUMAN EYES.

THERE are so few makers of artificial human eyes in this country that a chat with a specialist in this peculiar industry must always prove of particular interest. We had the pleasure recently of an interview with Mr. Thomas Pache, of the firm of Pache & Son, of Great Charles Street, Birmingham. Mr. Pache favored us with an inspection of some of his stock, and we were astonished to learn that he keeps upwards of 4,000 eyes always on the premises. We were still more surprised to learn that in spite of this large selection in most cases Mr. Pache finds it necessary to make an eye to order. "I suppose, Mr. Pache," our representative observed, "you manage to get good prices for your eyes?" "Sometimes," was the reply, "but you would be astonished at the way some people will haggle over a few shillings in the price of this specially designed article." The firm has a large hospital connection, and patients are sent to them for the purpose of having new eyes fitted as well as supplied. Mr. Pache is a great "stickler" on the subject of proper fitting. He complains that many dealers, who merely buy, are not at all particular as to whether they fix a right eye into a left socket, or vice versa, as long as they have in stock something approaching in color to the remaining optic. It is a fact little known to those having no experience in this peculiar work, that the artificial eye is not inserted right away into the empty socket. The patient wears a small concavo-convex glass shell for a few days in order to keep the eyelid open and to accustom the socket to the use of the new body. We were particularly interested in a case containing thirty-six models of the eye in various morbid conditions. Anything more horribly beautiful or beautifully horrible it is impossible to conceive. The models are exquisitely designed, and should prove of immense value to hospital students. We think such a case should be owned by every ophthalmic hospital, as these models convey a better idea of the various forms of diseases than the most carefully executed water-color drawings can do. In an early issue of *The Optician* we commented upon the hereditary nature of the optical industry, and remarked on the fact that in some workshops three generations of the same family of workmen might be found at the same bench. This is nothing when compared to the artificial-eye industry. Messrs. Pache retain the services of all their own family, and do not employ a single strange workman!—*The Optician.*

Lantern Flashes.

Mr. T. C. Hepworth, F.C.S., editor of the *Photographic* (London) *News*, lately gave an instructive and amusing lecture at Middelton Hall, in London, under the auspices of the National Sunday League. The subject was: "The Marvels of Modern Photography," with lantern illustrations. A large and appreciative audience was present and passed an enjoyable evening, frequently applauding the lecturer.

A dissolver for a single lantern has been invented in England. If this new apparatus should prove a practical success it will supply a long-felt want, which the owners of sciopticons and other single lanterns will know how to appreciate.

A Novel Printing Frame.—Mr. A. R. Wormald, of Sutton, Surrey, has invented an ingeniuos frame for producing lantern slides by contact from any size of negative, whole plate downwards. By means of this new frame the difficulties and loss of time in adjusting and holding negatives in working position for contact printing in an ordinary printing frame are avoided as well with quarter-plates as larger negatives. Many other advantages, including accurate centring and parallelism of vertical and horizontal lines with the side of the lantern plate, are secured. This new frame, moreover, offers unusual facilities for printing in skies on the slides. Our informant, who has seen the new frame, considers the apparatus an excellent and useful invention, which, it is thought, will bring about a revolution in lantern-slide making.

Contact Printing.—In making lantern slides by contact the length of exposure required varies according to the density of the negative and the developer used, negatives developed with eikonogen yielding excellent slides in less time than the same subjects developed with hydroquinone or pyro. It is best to have a fixed distance from the light for exposing the printing frame, and to vary the time of exposure according the printing qualities of the negative. By adhering to this rule little practice and experience soon generates confidence and enables the operator to make his slides with as little trouble as an ordinary negative.

Renew your subscription for 1892.

The Editorial Dropshutter.

Wanted—A flash-light compound free from smoke or objectionable gases.

The amateur photographer who is not a lanternist loses one of the greatest enjoyments connected with our art-science.

A patent has recently been granted in Berlin, Germany (D. R. P. 60,174), for the application of p.-amido.phenol and p.-amido kresol as photographic developers.

According to the *Chemiker Zeitung* we learn that the new patent color *Echtneutralviolett* of commerce is merely a product of dialkylmphenylendiamin and nitrosodimethylanilin.

The long winter evenings now give ample opportunity for lantern work and flash-light experiments,—two divertisements unknown to our fathers in their youth, and now brought about by modern photography.

The establishment of Simpkinson & Miller, photo. stock dealers of Cincinnati, Ohio, was badly damaged by fire on December 12th, 1891. With commendable energy temporary quarters were at once secured, and the business was resumed without delay.

Our contemporary, the *American Art Printer,* brings out as a supplement our illustration, "A Study in Posing," in an exquisite halftone, 9½ x 7, under the title "Cleopatra." The etching shows graduations of color as can only be found in Philadelphia-made plates.

When your negatives come thin and flat, especially after you have been photographically idle for a month or two, do not condemn plates nor developer, but examine your camera to make sure it is light-tight; also see that your lenses are clean and free from dust. A coating of the latter results in poor negatives.

Toledo Camera Club.—On New Year's day the ladies of the Toledo Camera Club arranged a New Year's reception at the clubrooms, from 8 to 10 P.M. It was an enjoyable affair, and pleasant memories will no doubt linger in the minds of many who were fortunate enough to be present. The success of the entertainment is due to the efforts of the following ladies, viz.: Mrs. F. C. Wade, Miss Bessie Canniff, Miss Maud Canniff, Mrs. F. S. Anable, Miss J. Jay Coon, Miss M. Georgia Ormond, Mrs. Lotta R. Wright, Mrs. H. E. Richards, and Miss Helen Marble.

Remember, a slide upon the screen shown to a roomful of people makes a far different impression than the same subject in the shape of a small silver print, although from the same negative. The former results in admiration and applause, while the latter is passed listlessly from hand to hand without note or comment.

How few professional photographers are willing to furnish a sitter with a lantern slide from the negative. Why should this unwillingness exist? Every professional with any pretension to portraiture should be able to produce as good a slide as silver print. Further, it would add to his income, and the slide wherever shown would certainly be a gratuitous advertisement if the character of the work warranted it.

American Superiority.—It is not generally known that the fine bromide enlargements now being distributed over the country by the New York Central Railroad, representing the "Empire State Express," are from a negative made by Mr. A. P. Yates, of Syracuse, N. Y., taken with an American lens and shutter (Bausch and Lomb Rapid Universal and Diaphragm Shutter) while the train was running at the rate of fully sixty miles an hour.

One of the neatest and most unique New Year souvenirs which have reached us is one from Ralph D. Cleveland, Esq., of Minneapolis, Minn. It consists of three folds of rough rag paper of various tints, with serrated edges fastened together with a white silk cord. A tinted photograph on plain paper is mounted lightly on the four inside pages; these represent "Minnehaha Falls in Winter," "Minnetonka," "Fort Snelling," and a group of "Birches," the whole forming an artistic souvenir.

We acknowledge the receipt of a "Catalogue of Photographs of the Newark (N. J.) Camera Club." It is souvenir of the first annual exhibition held November 23d to December 5th, 1891. The Exhibition Committee, Paul L. V. Thiery, Dr. Chas. A. Meeker, and Wm. A. Halsey, are to be congratulated upon their success, considering the fact that the club was only organized in April, 1888. The progress made by the members, as shown by the catalogue now before us, is truly wonderful.

What greater bore to a visitor is there than the family photograph album, and why? Because in ninety-five cases out of a hundred the cards are inserted in a careless or slovenly manner, without any reference to the relation of the subjects opposite or following each other. Necessarily the majority of portraits in the album are unknown to the

casual visitor, and at best can interest him but little. Now try and arrange your portraits, no matter whether family or public, with some pretension to system and order, and you will be surprised what a difference it will make in holding the attention of your visitor.

Toronto Camera Club.—At a recent meeting of the members of the "Toronto Amateur Photographic Association" they unanimously resolved that the name of the association be changed to that of "Toronto Camera Club." The officers of the club are: W. H. Ellis, M.D., *President;* E. H. Walsh, *Vice-President;* R. G. Muntz, *Secretary;* and R. S. Clarke, *Treasurer.* The club is in a flourishing condition, and has lately secured enlarged quarters at the corner of Yonge and Gerrard Streets, where a large studio has been specially built for photographic requirements. In addition, there are dark rooms supplied with every requisite for developing, enlarging room fitted with 100-candle-power electric light enlarging apparatus, printing and toning room, etc., together with the use of sundry valuable apparatus and backgrounds. It is now hoped that with everything provided for the needs of the most enthusiastic amateur there will be a great influx of new members. The annual subscription has been placed at the low figure of $5.00.

A Questionable Business Method.—L. H. Sawyer, an elderly photographer, 159 North Eighth Street, Philadelphia, was before Magistrate Clement lately upon the charge of assault and battery upon Eveline Butler. The prosecutrix testified that she accompanied her sister, Lizzie, to the defendant's place on Friday. The sister gave an order for photographs of herself. Sawyer asked Eveline if she intended to have some photographs taken, and when she said she did not he said that he had prepared the plates and she would have to pay him twenty-five cents.

Miss Butler demurred, and, so she alleges, the defendant planted himself against the door, and when she attempted to leave he roughly pushed her back. She became afraid and gave him the money. Lizzie Butler corroborated her sister's testimony.

Sawyer's defense was that Eveline had ordered a picture, and after he had arranged the plates she refused to sit. He informed her that she would have to pay him, and he gave her a receipt for the money, which entitled her to two tintype photographs of herself. Sawyer was held in $500 bail.

Renew your subscription.

Photographic Hints and Formulæ.

To separate stamps from each other, place them between clean, thoroughly moistened pieces of blotting paper, and leave them until they separate easily.

To Prevent Curling of Aristo Prints.—To obviate this annoyance add a small quantity of alcohol to the toning bath; or, better still, soak the prints in alcohol before toning.

To Make Writing Look Old.—Take one drachm of saffron, and infuse it into one-half pint of ink. Warm it over a gentle fire, and anything written with it will turn yellow and old-looking.

Something Handsome.—"I hear that Miss Upperbridge gave you a handsome Christmas present?" "Yes, she did." "What was it?" "She returned my photogra,h."—*Oil City Blizzard.*

Celluloid articles which may have been broken, and are considered valuable, can be mended by covering the broken edges with glacial acetic acid, and pressing the pieces together firmly until dry.

Photographing Speech.—Instantaneous photography has been used to record the movements of the lips in speaking; and by putting the photograph in a zoetrope a deaf mute can easily read the words, says a daily paper.—*Times.*

To prevent the loss of your pencil through having it slip from your pocket, put a rubber band around one end. The rubber clings to the lining of the pocket, with tenacity enough to prevent the pencil from falling or being jostled from the pocket.—*The American Art Printer.*

The Retouching Point.—To obtain a good point on the pencil has tried the patience of many a retoucher, and often caused much loss of temper. One of the best methods is, first, to roughly point the pencil with a sharp knife, then finish on a piece of ground glass. When extra fine work is wanted, two pieces of glass, with coarse and fine grain, will be found of service.

An Excellent Mountant.—With ordinary starch paste it often happens that prints loosen on the edges. A simple method to overcome this difficulty, and at the same time to increase the adhesive properties of the mountant, is to add while boiling a small quantity of Venetian turpentine.—*F. W. Geldmacher, in Liesegang's Almanac.*

Cleansing Bottles.—To remove the brown sediment in bottles containing hypo and alum solutions, pour a small quantity of sulphuric acid and a solution of bichromate of potash in the bottle. When the sediment is dissolved put in some water with sawdust or pieces of blotting paper, and shake up well.

Bird shot and water is also a good method of loosening this deposit.—*German Amateur Photographer.*

Silver Fluoride.—A solution of well-washed silver carbonate in hydrofluoric acid is evaporated to dryness, with constant stirring, in a platinum basin, and the resulting black pulverulent mass is dissolved in water and filtered. The clear filtrate, which, when left in contact with silver foil, yields crystalline silver subfluoride, is evaporated in the dark in a vacuum over sulphuric acid. As thus obtained, silver fluoride forms a yellow, transparent, tough, elastic mass, which is soluble in water, and melts at a dull red heat (the temperature as determined by Le Chatelier's thermo-electric method is 435°). Silver fluoride reacts violently with the chlorides of phosphorus, silicon, and boron, and with phosphorous oxychloride yielding the corresponding fluorine compounds of the non-metal and silver chloride.—*Journal of the Chemical Society.*

To Restore Old Photographs.—Put the card in warm water until the paper print may be removed from the card backing without injury. The prints can be restored by means of the following solutions: *a.* Sodium tungstate, 100 parts; water, 5,000 parts. *b.* Precipitated chalk, 4 parts; bleaching powder (chloride of lime), 1 part; sodium aurochloride, 4 parts; distilled water, 400 parts. Solution *b* is made in a well-corked yellow glass bottle, is allowed to stand twenty-four hours, and is then filtered into another yellow bottle. The faded prints are well washed, and placed in a mixture 1 to 2 parts of *b* and 40 parts of *a*. When the intensification is sufficient, the prints are immersed in a solution of 1 part of hypo in 10 parts of solution *a* until all yellowness has disappeared, and are then well washed.—*Scientific American.*

Fixing and Intensification Solution.—According to M. Milson-of Lyons, in the *Amateur Photographer*, weak and thin dry-plate nega, tives may be intensified in a fixing bath containing both hypo and ferrous sulphate, viz.:

A.—Hypo . . . . . 1 part.
Water . . . . . 3 parts.
B.—Sulphate of ammonium . . . . . 1 part.
Water . . . . . 5 parts.

The image becomes an intense black.

Colorless Varnish.—Colorless varnish, for use on fine labels or other prints, as well as for whitewood and other spotless articles, is made as follows: Dissolve two and one-half ounces of bleached shellac in one pint of rectified alcohol; to this add five ounces of animal bone-black, which should be first heated, and then boil the mixture for about five minutes. Filter a small quantity of this through filtering paper, and if not fully colorless add more boneblack and boil again. When this has been done, run the mixture through silk and through filtering paper. When cool it is ready for use. It should be applied with care and uniformity.

To Repair Papier Mache Accessories.—The professional photographer is often at a loss how to repair his accessories when they become broken or damaged. This is especially the case with photographers throughout the rural districts. For this purpose the following simple formula will be found valuable:

Take of good cabinet-makers' glue sixteen ounces, soak in water until soft, and then dissolve in water with heat until it becomes a thick fluid. Then take three sheets of strong white blotting paper and four sheets of white tissue paper, tear into small pieces, and stir into the glue with a wooden paddle until the pulp is mixed uniformly. When this has become a homogeneous mass, add, constantly stirring, eighty ounces of dry pulverized whiting, which is to be thoroughly incorporated with the pulp. After which

Linseed oil . . . . . 2⅓ ounces
Venetian turpentine . . . . . 1½ ounces

are added to the now plastic mass.

To prevent this stock pulp from fermenting, a small quantity of carbolic acid may be added.

Before using, the proper shade is given by kneading in dry color of the requisite shade. The application or modeling is done with a broad spatula.

Photographic Scissors and Paste.

"I don't mind doing away with the editorial 'we,'" said Editor Cutting, "but when a fellow comes into the office with a club and tries to abolish the editorial eye, it is a very different matter."—*Ex.*

Art in Blackville.—Photographer, focusing on a young American of African descent—"Now, Benjamin, stop grinning, and think of green persimmons, because if you smile we can't get the whole of you on the plate.

"Paper, sir?" asked the newsboy.

"No, I never read," was the blunt reply.

"Hi, boys, come here," called out the gamin; "here's a man as is practicin' for the jury!"—*Ex.*

Fickle William.—We learn by telegraph from Berlin that some uneasiness exists in that capital owing to demonstrations made by the photographers and artists in plaster-of-paris, who have been accustomed to reproduce likenesses and busts of His Imperial Majesty. They complain that, owing to a measure of uncertainty about the Emperor's personal appearance from day to day, they have large stocks thrown on their hands, and are reduced to a condition approaching bankruptcy. The crisis has been precipitated by the circumstance that, just when the combined trades, recovering from their first disaster, had produced a Christmas stock of portraits and busts, showing His Majesty with a beard, he shaved it off, and once more they have their goods returned on their hands.—*London Punch.*

The Indian *Daily News* says: "The Yankees have just found out that banana fibre will make printing paper of the finest quality at the cheapest rates. If this is true, we shall have paper down to a penny a pound before 1895. The supply of the new raw material will be inexhaustible, for the difficulty is to stop the banana plant growing in the countries where it is indigenous. English paper-makers will, of course, as usual, be the last to find out all about it." We do not know how this may be, but plantain fibre has for many years been known in Bengal, and the Bally Paper Mills have turned out some remarkably strong paper from it. The chief difficulty, we believe, is in cleaning the raw

material, and when this is successfully overcome by a process which will combine thoroughness with cheapness, the fibre will be very largely used. The supply would always be able to keep pace with the heaviest demand.—*Paper-Makers' Circular.*

A case has come before the courts of Berlin in which photography has once more proved itself to be a valuable ally of judicial investigation. A clerk in the employment of a certain banking firm was accused of having put into circulation a bill of exchange without affixing to it the stamp legally required. This, he declared before the court, that he had in due course done, but suggested that it had been subsequently removed. The bill in question was handed for examination to Dr. Bein, judicial chemist. On photographically enlarging the part to which it was alleged the stamp had been attached no trace of adhesive material could be discovered, and Dr. Bein demonstrated the validity of his negative by comparison with papers to which a stamp had been attached only for a moment, and in which traces of the adhesive material were plainly discernible.

Pigtail Photography.—The Treasury Department recently ordered that the photographs of all Chinamen arrested for unlawful entry into the United States from Canada be taken in order to establish a positive identification if they again return to this country. Lee Yick, Lee Lok, and Yan Bow were ordered back to Canada from Lockport, N. Y., by Commissioner Pound. There was a regular circus when their photographs were taken.

Lee Yick thought he was going to be executed when the photographer shot the camera at him, and he howled like a bull. Yan Bow had seen photography before, and he grinned all over, so it was impossible to get him in repose. Lee Lok was crafty and tried to hide his face. Copies of the photographs will be sent to each commissioner in this part of the country. There are over a hundred Chinamen in jail in New York State alone.

Flash-Light Work.—The unnatural expression frequently to be seen on the face of a person photographed with the aid of the flash-light has often been commented on. The painful look is similar to what might be expected if the sitter had just seen a ghost, and the picture was taken while the memory of the vision remained. This disagreeable quality in flash-light photographs is usually attributed to the shock that the sudden flash gives the sitter. It is to a totally different cause, however, that the expansion of the pupils of the eyes and

the accompanying weird glare are due. To take a flash-light picture the operator must darken the room, and while the room is darkened the pupils of the subject's eyes, in an effort to get what light there is, naturally expand. The picture is taken while they are in this state of unnatural expansion, with the consequence that in many flash-light negatives the sitter's eyes look like overcoat buttons. To further destroy the theory that the expression is due to the shock, it must be manifest that the picture is taken before the subject has time to change his expression.—*The Optician.*

A Young Lady's Experience in Photographic Art.—A young lady from Chester valley, an amateur photographer, was visiting in West Chester, Penna. The other day she grouped in pleasant attitude the family and friends with whom she is stopping in West Chester, and proceeded to photograph the same. Adjusting her hand-camera and locating at the proper focus the lenses, she "took" the group, and, transforming the party, she proceeded to give it another sitting. When the two negatives were taken she remarked in a tone of voice confident, as well as satisfied:

"There, that will do."

Proceeding to analyze the work she had accomplished, she discovered to her dismay that on both occasions she had the camera pointed the wrong way, and instead of the sober faces of her friends she had taken chickens, pigs, horse-tails, and a colored man who was looking over the back fence at the time. Her mortification and disappointment can better be imagined than described. But here we leave her, promising to forgive her, it being her first offence.

New Method of Producing Salted Paper with a Resinous Emulsion.—Salted paper, giving prints of from brownish to platinum-black tones, is prepared by E. Valenta in the following way: 10 grams of ammonium chloride are dissolved in 100 c.c. of water; on the other hand, from 3 to 4 grams of gelatine are allowed to swell in water, and, at the same time, from 3 to 4 grams of very finely powdered light yellow French colophony are saponified with ammonia. This is done best by bringing water in a porcelain dish up to the boiling point, adding to it a little ammonia, and stirring the colophony gradually into the liquid. The clear resin-soap solution is then mixed with the swelled gelatine, and after the latter has dissolved the ammonium chloride solution is added. Distilled or rain water is added up to 1000 c.c., and the solution carefully neutralized with diluted hydrochloric acid; and finally a concentrated solution of citric acid in water

is added until the solution shows a distinctly acid reaction. A milky solution is obtained in this manner, which is employed in the preparation of the paper. Rives' plain paper is recommended by the author for this purpose. It should be moistened by means of a sponge with the warm solution, and then floated for about three minutes upon the warm liquid. It is then hung up in a warm room to dry. To sensitize the paper, a ten or twelve per cent. solution of silver nitrate in water should be used, on which the paper is floated for two or three minutes. The paper is dried in a dark room, and may then be used for printing; but it will be better to fume it previous to printing, in the well-known manner for about ten minutes, since it will then print quicker and yield more brilliant prints. If the paper, after printing, is soaked for a short time in water, and then fixed in a ten per cent. solution of hypo which has been acidulated by means of sodium bisulphite, prints will be obtained of an agreeable reddish-brown. The image will not be sunk in, as in the case of the ordinary salted paper, but it will show brilliancy and clear whites.

To obtain black tones, the prints are at first placed in a bath of 0.3 grams of chloride of gold, 8 grams of borax, and 1,000 c.c. of water, and allowed to remain until they have acquired an intensely dark violet tone by transmitted light. They are then rinsed with water, and placed in a bath consisting of 1 gram of potassium chloroplatinite, 300 c.c. of water, and from 15 to 20 drops of nitric acid. In this bath they soon acquire a black color, which, after fixing, washing, and drying, renders them very similar to platinotypes. If the prints are fixed directly after toning, they obtain a very agreeable reddish-black color; if an acid bath of uranium nitrate is employed instead of the gold bath, the prints acquire a decided red-chalk tone. —*The Photographic News.*

"**Now,** isn't that a perfect picture of the baby?" asked Mrs. Noopop, displaying a new cabinet photograph.

"I don't think it is," said Noopop. "I don't hear a sound."

A man is like a postage stamp. When he is badly stuck on himself, as it were, he is not worth two cents for any practical use.

Our Illustration.—For the present month we present our patrons with a chromatic process reproduction of an instantaneous photograph, taken at night during the conflagration of the Luray Inn, November 5th, 1891. The negative is one of several made of the fire by S. K. Wright, photographer at Luray, Va. The exposure was made with a single achromatic lens, on a rapid portrait plate, a quarter-inch stop being used. The plates were developed with an ordinary pyro and soda developer. The night in question was very dark and misty, in fact, just the kind of a night when good results were least to be expected.

Mr. Wright certainly showed great enterprise in making the attempt to obtain views of the destruction of the celebrated hostelrie under such adverse conditions.

Our reproduction is from an ordinary half-tone plate etched on copper, printed with an additional color or tint block. The effect obtained well illustrates the possibilities of the use of color blocks in connection with the ordinary photo-engraving.

Novel Flash-Light Effects.—We are in receipt of prints from several negatives made with flash-light by E. M. Alden, Esq., Troy, N. Y.

Two of the pictures show a deer in his native haunts, as he is jumping through a swamp. These exposures were made from a boat, a novel application of flash-light photography never before attempted. This is the second season that Mr. Alden has attempted to photograph deer in their native haunts at night; the first season he met with no success. During the past season, out of seven attempts, he obtained the two negatives of which we have prints before us. In addition to the above, Mr. Alden has succeeded in obtaining an excellent negative representing night hunting in the Adirondacks, showing how deer are killed ahead of a light at night. This picture shows the hunters in their boat and a deer standing in the brush on the shore attracted by the light.

A New Enterprise.—We have received word that on January 1st, Mr. Henry Reichenbach, Dr. S. C. Passavourt and G. M. D. Milburn severed their connections with the Eastman Co., of Rochester, N. Y., and expect to engage in mauufacturing business on their own account. It is said that they have made and perfected what experts have pronounced as a very valuable invention in photography, which with some other photographic specialties, will be what they expect to manufacture for the trade. Announcement will be made through the AMERICAN JOURNAL OF PHOTOGRAPHY, at an early date.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Society was held Wednesday evening, January 13th, 1892, Vice-President Joseph H. Burroughs in the chair.

The Board of Directors presented their monthly report, in which progress was reported in the work on the improvements in the meeting and work rooms, and it will be completed in time for the opening reception on January 21st. Attention was called to the Honor Picture Competitive Exhibition which would open on the evening of the reception, continuing until February 10th. On the evening of February 3d an illustrated lecture would be given by Dr. C. L. Mitchell on "Switzerland—The High Alps."

Mr. F. E. Ives exhibited one of his cameras for composite heliochromy. With a lantern objective having only one (large) aperture this camera produces three sharp images, exactly alike as to size and perspective and on one plane. Mr. Ives stated that such a camera would prove to be a practical necessity for composite heliochromy, and he regarded it as an optical triumph.

The subject announced for discussion, viz., "The Permanency of the Undeveloped Image on Dry Plates—What Conditions Influence It?" was next taken up.

Mr. Pancoast stated that some time ago he purchased three dozen plates of a well-known make. He used one dozen with excellent results at the time of purchase; the rest he laid aside, and did not use them until May, 1891, when he exposed four and found them all right. On May 16th he exposed six more on landscapes and interiors, giving rather full exposures. A week ago Mr. Pancoast commenced development. On placing a fully exposed landscape in pyro and potash developer no trace of image appeared. A second plate treated to a dilute alkali bath previous to the pyro, then subjected to a prolonged and forced development, produced no better result. A third plate, landscape, hydroquinone developer, still no result. A fourth plate was next tried in a mixed eikonogen and hydroquinone developer, and, strange to say, a very fair negative was the result. He then tried some of the unexposed plates on neighboring houses, producing good negatives.

Dr. Mitchell said it was generally recognized that eikonogen would bring out details that pyro would not. While he could not explain or give any good reason why Mr. Pancoast's plates did not come up properly, he thought there was no question that eikonogen would often bring out an image that pyro would utterly fail to produce at all.

Mr. Carbutt said that his experience had been quite contrary to

Mr. Pancoast's. He had made several hundred exposures in Europe in 1890, and they were not yet all developed. He had developed from time to time and had found no decrease in the image,—if anything, rather an increase.

Mr. Bell added his testimony in regard to the pyro and a mixed eikonogen and hydroquinone developer. Several times, in using pyro, he had failed to get any good results, but in changing immediately to the mixed developer he had obtained a beautiful image.

Mr. Bell asked Mr. Carbutt if he knew whether manufacturers to-day used any tannin at all in making the emulsion.

Mr. Carbutt could only answer for himself. He did not use any.

Mr. Chapman had been troubled with the film negatives darkening from the edge inward when kept several months after exposure, the trouble increasing with the length of time they were kept until, in some cases, it covered the film entirely.

Mr. Carbutt recommended packing in waxed paper as a preventive of fogging from the edges.

Mr. Brown favored the old-time method of packing plates tightly together with a piece of orange post-office paper between each pair. Plates packed in that way, very tightly wrapped together, he had kept for four or five years, and they were as good at the end of that time as when he bought them. The present method of separating plates permits the circulation of air between them, carrying with it gases and impurities which would tend to injure the plates and bring about the blackened edges spoken of by Mr. Chapman, extending finally to the centre of the plate. Some time ago he placed some plates that were working admirably into his plate-holders, where they remained over two months. When exposed and developed he found this blackening upon the edges. Curiosity prompted the trial of some of the plates he had kept in a tin box in the same paper packages in which they had been received. Result: no blackening. In the former case the plates in the holders were exposed to the air, whereas those in the paper box enclosed in a tin box were kept from contact with the air; none could get in. He would suggest that the makers pack their plates closely together, rather than separate them, as was now done. In his experience those packed tightly did no rub or scratch.

Mr. Wood referred to the plates mentioned by him at the last meeting which had been three weeks in the hypo without changing, and suggested that plates developed with eikonogen, above a certain temperature, so tanned the film, that it prevented its clearing at all.

Several lantern slides, made with the new para-amido-phenol developer, were next exhibited by Dr Mitchell, after which the meeting adjourned.

ROBERT S. REDFIELD, *Secretary.*

In the Twilight Hour.

CHAIN anger, lest it chain thee.

CHILDREN are poor men's riches.

BAD beginnings have bad endings.

SPEECH is silvern, silence is golden.

DO good if you expect to receive it.

FORE-CAST is better than work-hard.

UNLESS we do what is useful, vain is our glory.

GRATITUDE preserves old friendship and procures new.

HE that defends an injury is next to him that commits it.

THROW no stones into the well whence you have drunk.

HEALTH and understanding are the two great blessings of life.

A LAUGH costs too much if it is bought at the expense of propriety.

HE is not a virtuous man that loveth not virtue even in an enemy.

LABOR rids us of three great evils,—irksomeness, vice, and poverty.

HE surely is in want of another's patience who has none of his own.

IT is a sin against hospitality to open your doors and shut up your countenance.

EMPLOY the hours of sunshine, for "when the night cometh no man can work."

TWO things indicate an obscure understanding: to be silent when we ought to converse, and to speak when we should be silent.

THE desire of knowledge, like the thirst of riches, increases ever with the acquisition of it.

TAKE care to be an economist in prosperity; there is no fear of your being one in adversity.

HE who is most slow in making a promise is apt to be the most faithful in the performance of it.

THE tallest trees are most in the power of the wind, and ambitious men of the blasts of fortune.

FOR want of a nail, the shoe is lost; for want of a shoe, the horse is lost; for want of a horse, the man is lost.

IF you stand in need of physicians, let these three things be your physicians: a cheerful mind, relaxation from business, and a moderate diet.

"THE gain of lying," said the great Sir Walter Raleigh, "is nothing else but not to be trusted of any, nor to be believed when we say the truth."

TRUE happiness is of a retired nature, and an enemy of pomp and noise. It arises, in the first place, from the enjoyment of one's self, and, in the next, from the friendship and conversation of a few select friends.

HE that never changed any of his opinions never corrected any of his mistakes; and he who was never wise enough to find out any mistakes in himself will not be charitable enough to excuse what he reckons mistakes in others.

IRREGULARITY and want of method are only supportable in men of great learning or genius, who are often too full to be exact, and therefore choose to throw down their pearls in heaps before the reader rather than be at the pains of stringing them.

Literary and Business Notes.

THE Christmas number of the *Photographic Times*, as usual, comes in the shape of a double number with our full-page illustrations and illuminated capitals. A novel feature is the portrait and autograph of the different writers at the end of their papers.

RECEIVED from Gauthier-Villars, Paris, "Manuel de Ferrotype," by Henry Gauthier-Villars. It consists of thirty-six pages, divided into six chapters, embracing the various manipulations involved in the production of ferrotypes, the closing chapter dealing with their applications.

THE first of the mechanical-process catalogues to reach us in the new year is one from the Philadelphia Photo-Electrotype Co. It contains a number of specimens of half-tone illustrations from photographs, wash drawings, paintings, etc., all etched on copper, and well illustrates the great strides made in this branch of photo-mechanical processes within the last few years.

THE *Philadelphia Record* almanac for 1892 is received. As usual it is full of useful and local matter, even surpassing its predecessors in the amount of information contained between its covers. A unique feature of the almanac is a series of sixteen illustrations of Old Philadelphia, as it appeared a century ago. The plates are half-tone reproductions from originals in possession of Mr. Julius F. Sachse, the editor of the AMERICAN JOURNAL OF PHOTOGRAPHY.

THE *Scientific American*, published by the patent agency firm of Munn & Co., New York, is the most practically useful publication of its kind in the country. Indeed, t occupies a field distinctively it own. Not alone for the machinist, manufacturer, or scientist, but it is a journal for popular perusal and study. It is the standard authority on scientific and mechanical subjects. It is placed at a very low rate of subscription, $3 per annum, which places it within the reach of all. Subscriptions will be received at the office of this journal.

PHOTOGRAPHY APPLIED TO THE MICROSCOPE. Anthony's Photo. Series, No. 36. By F. W. Mills, with an appendix on Mounting Objects by T. Charters White, M.R.C.S., F.R.M.S., illustrated with half-tone plates and wood-cuts. This booklet of 62 pages is handsomely gotten up, and published simultaneously in London, Melbourne, and New York. A practical guide for the application of photography to microscopy has been a long-felt want; this booklet fills this demand. All the different processes from the preparation of the microscopical object to the final printing are set forth in a concise and practical form.

A UNIQUE MAGAZINE.—A unique experiment will be tried in the February issue of the *Ladies' Home Journal*. The entire number has been contributed in prose, fiction, and verse by the daughters of famous parentage, as a proof that genius is often hereditary. The work of thirty of these "daughters" will be represented. These will comprise the daughters of Thackeray, Hawthorne, Dickens, James Fenimore Cooper, Horace Greeley, Mr. Gladstone, President Harrison, William Dean Howells, Senator Ingalls, Dean Bradley of Westminster, Julia Ward Howe, General Sherman, Jefferson Davis, and nearly a score of others. Each article, poem, or story printed in this number has been especially written for it, and the whole promises to be a successful result of an idea never before attempted in a magazine.

RECENT PATENTS.

THE following list of patents relating to the photographic interests is specially reported by Franklin H. Hough, solicitor of American and foreign patents, No. 923 F Street, Northwest, Washington, D. C.

ISSUE OF DECEMBER 1ST, 1891.

464,462—Photographic Cameras, Lens Supporter for; C. Mills, assignor to E. & H. T. Anthony & Company, New York.

494,260—Photographic Camera Shutter; A. G. Tisdell, Brooklyn, N. Y.

ISSUE OF DECEMBER 8TH, 1891.

No issues.

ISSUE OF DECEMBER 15TH, 1891.

464,998—Photographic Apparatus, Shutter for; W. E. Schneider, assignor to M. Earle, trustee, Philadelphia, Pa.

465,277—Photographic Printing Frame; H. Kuhm, Springfield, Mo.

465,178—Photographic Process for Printing in Colors; J. C. Hosch, Vienna, Austria-Hungary.

464,999—Tripod; W. E. Schneider, assignor to M. Earle, trustee, Philadelphia, Pa.

ISSUE OF DECEMBER 22D, 1891.

465,740—Photographic Machine, Coin Operated; C. B. Booth, Camden, N. J.

ISSUE OF DECEMBER 29TH, 1891.

466,000—Photographic Printing Frame; A. Barker, Peekskill, N. Y.

Photographischer Almanach und Kalender for the year 1892, published by Ed. Liesegang, Germany.

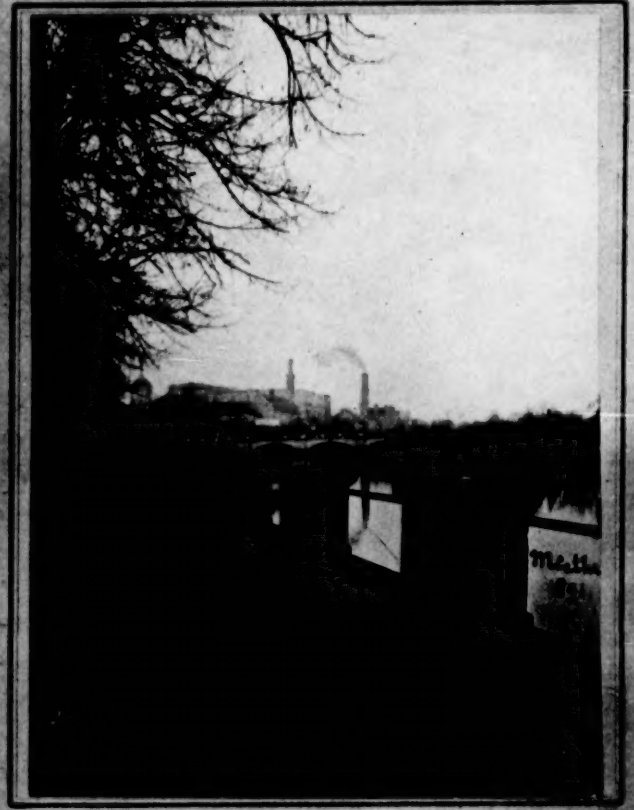
This annual, in contrast to the English and American annuals, is a small and handy volume of 176 pages, and contains as much if not more information than its more bulky competitors. The frontispiece is a portrait of Ottmar Anschütz, well known from his photographic studies in scientific photography. The almanac is fully up to its predecessors of former years, and forms a ready volume of reference for the German amateur and professional.

AMERICAN JOURNAL OF PHOTOGRAPHY, MARCH, 1892.

From the same standpoint

taken from a distance of 350 m. with Dr Miethe's new telephotographic lens. Camera length: 28 cm. Expos. 0.5 Sec.

From the same standpoint



taken from a distance of 350 m. with an ordinary Dr Miethe's symmetrical lens, smallest stop, Expos. 1,5 Sec.

NEGATIVE BY DR. ADOLPH MIETHE, BERLIN, GERMANY.

THE NEW PHOTO-TELE OBJECTIVE.

IVE'S PROCESS, CROSSCUP & WEST, ENG. CO., PHILA.